

Gunter, Jason

From: Nations, Mark <mnations@doerun.com>
Sent: Sunday, April 13, 2014 4:51 AM
To: Gunter, Jason
Cc: Yingling, Mark; Wohl, Matthew; robert.hinkson@dnr.mo.gov; brandon.wiles@dnr.mo.gov; Ty Morris (TMorris@barr.com)
Subject: Leadwood Progress Report
Attachments: LW_03-14[1].doc; 2014-03-11 LW NPDES Pace Lab Report.pdf

Jason, attached is the March 2014 report.
Mark

07CR



4.2

**THE
DOE RUN
COMPANY**

Remediation Group

Mark Nations
Mining Properties Manager
mnations@doerun.com

April 11, 2014

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
11201 Renner Blvd.
Lenexa, KS 66219

Re: The Doe Run Company - Leadwood Mine Tailings Site Monthly Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 50 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0272) for the referenced project and on behalf of The Doe Run Company, the progress report for the period March 1, 2014 through March 31, 2014 is enclosed. If you have any questions or comments, please call me at 573-518-0800.

Sincerely,



Mark Nations
Mining Properties Manager

Enclosures

- c: Mark Yingling – TDRC (electronic only)
- Matt Wohl – TDRC (electronic only)
- Robert Hinkson – MDNR
- Brandon Wiles – MDNR
- Ty Morris – Barr Engineering

Leadwood Mine Tailings Site
Leadwood, Missouri
Removal Action - Monthly Progress Report
Period: March 1, 2014 – March 31, 2014

1. Actions Performed or Completed This Period:

- a. Work began on the development of the Post Removal Site Control Plan.

2. Data and Results Received This Period:

- a. During this period, water samples were collected from downstream of Leadwood Dam and the East Seep and Erosion Area, as well as from upstream and downstream of the confluence of Eaton Creek with Big River. The analytical results for this event are included with this progress report.
- b. During this period, the Ambient Air Monitoring Report for December was completed. Any issues identified in this report are discussed below. A copy of this document has been sent to your attention.

The December 2013 Ambient Air Monitoring Report noted the following:

- The action levels for lead and dust were not exceeded.
- No sample was taken on the Big River #4 TSP monitor on 12/03/13 and 12/04/13 due to the run time of the monitor being outside of the acceptable limits. This issue has been addressed.
- No sample was taken on the Leadwood #2 (office) TSP monitor on 12/19/13, 12/20/13, and 12/30/13 due to the run time of the monitor being outside of the acceptable limits. This issue has been addressed.
- No samples were taken with the TSP monitors on 12/24/13, 12/25/13, or 12/31/13 due to the holiday.

3. Scheduled Activities not Completed This Period:

- a. None.

4. Planned Activities for Next Period:

- a. Work will continue on the development of the Post Removal Site Control Plan.
- b. Continue vegetation maintenance activities. The use of biosolids will only be continued if a biosolids management plan has been submitted to and approved by EPA.
- c. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- d. Complete air monitoring activities as described in the Removal Action Work Plan.

5. Changes in Personnel:

- a. None.

6. Issues or Problems Arising This Period:

- a. None.

7. Resolution of Issues or Problems Arising This Period:

- a. None.



Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

March 19, 2014

Amy Sanders
The Doe Run Company
P. O. Box 500
Viburnum, MO 65566

RE: Project: NPDES MONTHLY (LEADWOOD)
Pace Project No.: 60164626

Dear Amy Sanders:

Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



Pace Analytical Services, Inc.

9608 Loiret Blvd.

Lenexa, KS 66219

(913)599-5665

CERTIFICATIONS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

WY STR Certification #: 2456.01

Arkansas Certification #: 13-012-0

Illinois Certification #: 003097

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212008A

Oklahoma Certification #: 9205/9935

Texas Certification #: T104704407-13-4

Utah Certification #: KS000212013-3

Illinois Certification #: 003097

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



Pace Analytical Services, Inc.

9608 Loiret Blvd.

Lenexa, KS 66219

(913)599-5665

SAMPLE SUMMARY

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60164626001	LEADWOOD 001	Water	03/11/14 11:01	03/12/14 08:45
60164626002	LEADWOOD 002	Water	03/11/14 10:46	03/12/14 08:45
60164626003	LEADWOOD UPSTREAM	Water	03/11/14 11:41	03/12/14 08:45
60164626004	LEADWOOD DOWNSTREAM	Water	03/11/14 11:55	03/12/14 08:45

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

**SAMPLE ANALYTE COUNT**

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60164626001	LEADWOOD 001	EPA 200.7	TDS	3	PASI-K
		SM 2540D	JMC1	1	PASI-K
		SM 2540F	JMC1	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60164626002	LEADWOOD 002	EPA 200.7	TDS	3	PASI-K
		SM 2540D	JMC1	1	PASI-K
		SM 2540F	JMC1	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60164626003	LEADWOOD UPSTREAM	EPA 200.7	TDS	6	PASI-K
		EPA 200.7	TDS	3	PASI-K
		SM 2540D	JMC1	1	PASI-K
		EPA 300.0	OL	1	PASI-K
60164626004	LEADWOOD DOWNSTREAM	EPA 200.7	TDS	6	PASI-K
		EPA 200.7	TDS	3	PASI-K
		SM 2540D	JMC1	1	PASI-K
		EPA 300.0	OL	1	PASI-K

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)
Pace Project No.: 60164626

Sample: LEADWOOD 001		Lab ID: 60164626001		Collected: 03/11/14 11:01		Received: 03/12/14 08:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Cadmium	2.4J	ug/L	5.0	0.56	1	03/13/14 09:00	03/13/14 15:29	7440-43-9	
Lead	2.8J	ug/L	5.0	2.2	1	03/13/14 09:00	03/13/14 15:29	7439-92-1	
Zinc	1650	ug/L	50.0	12.5	1	03/13/14 09:00	03/13/14 15:29	7440-66-6	
2540D Total Suspended Solids		Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	5.0	1		03/13/14 07:38		
2540F Total Settleable Solids		Analytical Method: SM 2540F							
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		03/12/14 14:00		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Sulfate	263	mg/L	50.0	4.9	50		03/17/14 16:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Sample: LEADWOOD 002 Lab ID: 60164626002 Collected: 03/11/14 10:46 Received: 03/12/14 08:45 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium	4.3J	ug/L	5.0	0.56	1	03/13/14 09:00	03/13/14 15:31	7440-43-9	
Lead	8.8	ug/L	5.0	2.2	1	03/13/14 09:00	03/13/14 15:31	7439-92-1	
Zinc	5200	ug/L	50.0	12.5	1	03/13/14 09:00	03/13/14 15:31	7440-66-6	
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		03/13/14 07:38		
2540F Total Settleable Solids Analytical Method: SM 2540F									
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		03/12/14 14:00		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	475	mg/L	50.0	4.9	50		03/17/14 16:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Sample: LEADWOOD UPSTREAM Lab ID: 60164626003 Collected: 03/11/14 11:41 Received: 03/12/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium	ND	ug/L	5.0	0.56	1	03/13/14 09:00	03/13/14 15:34	7440-43-9	
Calcium	38300	ug/L	100	7.8	1	03/13/14 09:00	03/13/14 15:34	7440-70-2	
Lead	ND	ug/L	5.0	2.2	1	03/13/14 09:00	03/13/14 15:34	7439-92-1	
Magnesium	23900	ug/L	50.0	17.0	1	03/13/14 09:00	03/13/14 15:34	7439-95-4	
Total Hardness by 2340B	194000	ug/L	500		1	03/13/14 09:00	03/13/14 15:34		
Zinc	ND	ug/L	50.0	12.5	1	03/13/14 09:00	03/13/14 15:34	7440-66-6	
200.7 Metals, Dissolved (LF) Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium, Dissolved	0.68J	ug/L	5.0	0.56	1	03/12/14 14:00	03/13/14 10:50	7440-43-9	M1
Lead, Dissolved	ND	ug/L	5.0	2.2	1	03/12/14 14:00	03/13/14 10:50	7439-92-1	M1
Zinc, Dissolved	ND	ug/L	50.0	12.5	1	03/12/14 14:00	03/13/14 10:50	7440-66-6	M1
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		03/13/14 07:38		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	17.1	mg/L	2.0	0.20	2		03/17/14 16:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

**ANALYTICAL RESULTS**

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

Sample: LEADWOOD
DOWNSTREAM **Lab ID:** 60164626004 **Collected:** 03/11/14 11:55 **Received:** 03/12/14 08:45 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium	ND	ug/L	5.0	0.56	1	03/13/14 09:00	03/13/14 15:36	7440-43-9	
Calcium	39300	ug/L	100	7.8	1	03/13/14 09:00	03/13/14 15:36	7440-70-2	
Lead	ND	ug/L	5.0	2.2	1	03/13/14 09:00	03/13/14 15:36	7439-92-1	
Magnesium	24100	ug/L	50.0	17.0	1	03/13/14 09:00	03/13/14 15:36	7439-95-4	
Total Hardness by 2340B	197000	ug/L	500		1	03/13/14 09:00	03/13/14 15:36		
Zinc	22.6J	ug/L	50.0	12.5	1	03/13/14 09:00	03/13/14 15:36	7440-66-6	
200.7 Metals, Dissolved (LF) Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Cadmium, Dissolved	ND	ug/L	5.0	0.56	1	03/12/14 14:00	03/13/14 10:55	7440-43-9	
Lead, Dissolved	ND	ug/L	5.0	2.2	1	03/12/14 14:00	03/13/14 10:55	7439-92-1	
Zinc, Dissolved	18.2J	ug/L	50.0	12.5	1	03/12/14 14:00	03/13/14 10:55	7440-66-6	
2540D Total Suspended Solids Analytical Method: SM 2540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		03/13/14 07:38		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	23.2	mg/L	5.0	0.49	5		03/17/14 17:14	14808-79-8	

REPORT OF LABORATORY ANALYSISThis report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.



QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

QC Batch: MPRP/26437

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Total

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

METHOD BLANK: 1342984

Matrix: Water

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	ug/L	ND	5.0	03/13/14 15:18	
Calcium	ug/L	ND	100	03/13/14 15:18	
Lead	ug/L	ND	5.0	03/13/14 15:18	
Magnesium	ug/L	ND	50.0	03/13/14 15:18	
Total Hardness by 2340B	ug/L	ND	500	03/13/14 15:18	
Zinc	ug/L	ND	50.0	03/13/14 15:18	

LABORATORY CONTROL SAMPLE: 1342985

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	1000	1030	103	85-115	
Calcium	ug/L	10000	10200	102	85-115	
Lead	ug/L	1000	1050	105	85-115	
Magnesium	ug/L	10000	10300	103	85-115	
Total Hardness by 2340B	ug/L		67800			
Zinc	ug/L	1000	1040	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1342986 1342987

Parameter	Units	60164625001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1040	1030	104	103	70-130	1	10	
Calcium	ug/L	110000	10000	10000	112000	114000	28	38	70-130	1	9 M1	
Lead	ug/L	5.4	1000	1000	1030	1020	103	102	70-130	1	10	
Magnesium	ug/L	60300	10000	10000	66000	67000	57	68	70-130	2	9 M1	
Total Hardness by 2340B	ug/L	522000			553000	560000				1		
Zinc	ug/L	175	1000	1000	1170	1160	100	98	70-130	1	11	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

QC Batch: MPRP/26429

Analysis Method: EPA 200.7

QC Batch Method: EPA 200.7

Analysis Description: 200.7 Metals, Dissolved

Associated Lab Samples: 60164626003, 60164626004

METHOD BLANK: 1342671

Matrix: Water

Associated Lab Samples: 60164626003, 60164626004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	ND	5.0	03/13/14 10:20	
Lead, Dissolved	ug/L	ND	5.0	03/13/14 10:20	
Zinc, Dissolved	ug/L	ND	50.0	03/13/14 10:20	

LABORATORY CONTROL SAMPLE: 1342672

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	1000	1020	102	85-115	
Lead, Dissolved	ug/L	1000	1030	103	85-115	
Zinc, Dissolved	ug/L	1000	1020	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1342673 1342674

Parameter	Units	60164625001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Cadmium, Dissolved	ug/L	ND	1000	1000	1060	1050	105	105	70-130	0	10
Lead, Dissolved	ug/L	2.7J	1000	1000	1020	1020	102	102	70-130	0	10
Zinc, Dissolved	ug/L	125	1000	1000	1120	1120	99	100	70-130	1	11

SAMPLE DUPLICATE: 1344334

Parameter	Units	60164626003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.68J	ND		20	
Lead, Dissolved	ug/L	ND	ND		20	
Zinc, Dissolved	ug/L	ND	ND		20	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

**QUALITY CONTROL DATA**

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

QC Batch: WET/46644

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

METHOD BLANK: 1342880

Matrix: Water

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	03/13/14 07:36	

SAMPLE DUPLICATE: 1342881

Parameter	Units	60164548003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 1342882

Parameter	Units	60164626004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

QC Batch: WETA/28630

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

METHOD BLANK: 1345188

Matrix: Water

Associated Lab Samples: 60164626001, 60164626002, 60164626003, 60164626004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	03/17/14 14:40	

LABORATORY CONTROL SAMPLE: 1345189

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1345190 1345191

Parameter	Units	60164625001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	243	100	100	336	335	93	92	80-120	0	15	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

Project: NPDES MONTHLY (LEADWOOD)

Pace Project No.: 60164626

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES MONTHLY (LEADWOOD)
Pace Project No.: 60164626

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60164626001	LEADWOOD 001	EPA 200.7	MPRP/26437	EPA 200.7	ICP/20148
60164626002	LEADWOOD 002	EPA 200.7	MPRP/26437	EPA 200.7	ICP/20148
60164626003	LEADWOOD UPSTREAM	EPA 200.7	MPRP/26437	EPA 200.7	ICP/20148
60164626004	LEADWOOD DOWNSTREAM	EPA 200.7	MPRP/26437	EPA 200.7	ICP/20148
60164626003	LEADWOOD UPSTREAM	EPA 200.7	MPRP/26429	EPA 200.7	ICP/20145
60164626004	LEADWOOD DOWNSTREAM	EPA 200.7	MPRP/26429	EPA 200.7	ICP/20145
60164626001	LEADWOOD 001	SM 2540D	WET/46644		
60164626002	LEADWOOD 002	SM 2540D	WET/46644		
60164626003	LEADWOOD UPSTREAM	SM 2540D	WET/46644		
60164626004	LEADWOOD DOWNSTREAM	SM 2540D	WET/46644		
60164626001	LEADWOOD 001	SM 2540F	WET/46612		
60164626002	LEADWOOD 002	SM 2540F	WET/46612		
60164626001	LEADWOOD 001	EPA 300.0	WETA/28630		
60164626002	LEADWOOD 002	EPA 300.0	WETA/28630		
60164626003	LEADWOOD UPSTREAM	EPA 300.0	WETA/28630		
60164626004	LEADWOOD DOWNSTREAM	EPA 300.0	WETA/28630		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



Sample Condition Upon Receipt

WO#: 60164626



Client Name: Doe Run

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 7961 7064 984 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☒ Bubble Bags ☐ Foam ☐ None ☐ Other ☐

Thermometer Used: T-239 / T-194

Type of Ice: Wet Blue ☐ None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 1.0

Temperature should be above freezing to 5°C

Date and Initials of person examining contents: 3/12/14 MS

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>Soft Solids</u>
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Unpreserved 5035A soils frozen w/in 48hrs?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Sample labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Includes date/time/ID/analyses	Matrix: <u>water</u>	15.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>MS</u> Lot # of added preservative
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	18.
Pace Trip Blank lot # (if purchased):	<u>MS</u>	19.
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	20.
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	21. List State:

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: 3/12/14



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: The Doe Run Company	Report To: Amy Sanders	Attention: Amy Sanders
Address: PO Box 500	Copy To:	Company Name: The Doe Run Company
Viburnum, MO 65566		Address: PO Box 500, Viburnum, MO 65566
Email To: asanders@doerun.com	Purchase Order No.:	Pace Quote Reference:
Phone: 573-689-4535 Fax: 573-244-8179	Project Name: NPDES Monthly (Leadwood)	Pace Project Manager: Jamie Church
Requested Due Date/TAT: 5 - 7 Days	Project Number:	Pace Profile #:
		REGULATORY AGENCY
		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input checked="" type="checkbox"/> OTHER
		Site Location: MO
		STATE: MO

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test	Requested Analysis Filtered (Y/N)								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃		Methanol	Other	TSS	Settleable Solids	Sulfate	Cd, Pb, Zn - Total	Hardness	Cd, Pb, Zn - Dissolved		
1	Leadwood 001		WW	G			3/11/14	1101		3	2	1						X	X	X	X							N	(60164626)
2	Leadwood 002		WW	G			3/11/14	1046		3	2	1						X	X	X	X							N	(60164626)
3	Leadwood Upstream		W	G			3/11/14	1141		2	1	1						X		X	X	X						N	(60164626)
4	Leadwood Downstream		W	G			3/11/14	1155		2	1	1						X		X	X	X						N	(60164626)
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* 200.8 Total Recoverable Metals	Larry Hopkins	3/11/14	1330	[Signature]	3/11/14	845	1.8 Y Y Y
**analyzed within 24 hours with flagged data							

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Larry Hopkins				
SIGNATURE of SAMPLER:	[Signature]	DATE Signed (MM/DD/YY):	3/11/14		

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007